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Washington, D.C. 20231

Attorney Docket No.: VX002126  
Date: April 20, 2000

A

Dear Sir:

Transmitted herewith for filing is the **UTILITY** patent application of:

Inventor(s): Chih-Keng HSIEH

Title: TRIANGLE ROAD SIGN WITH SOLAR POWER-DRIVEN FLASHING LIGHT MEANS

- ☒ 12 pages of written description, claims and abstract.  
☒ NINE sheet(s) of formal drawings.  
☒ Executed Declaration and Power of Attorney  
☐ Assignment Papers (cover sheet and documents)  
☐ Certified Copy of Priority Documents  
☐ Information Disclosure Statement  
☒ Small Entity Statement(s)  
☒ Return Postcard Receipt  
☐ Preliminary Amendment

☐ Other: \_\_\_\_\_

☒ Filing Fee, calculated as shown below:

FOR:	(Col. 1) NO. FILED	(Col. 2) NO. EXTRA*
BASIC FEE		
TOTAL CLAIMS	3 - 20 =	0
INDEP. CLAIMS	2 - 3 =	0
<input type="checkbox"/> MULTIPLE DEPENDENT CLAIMS PRESENTED		

\* If the difference in Col. 1 is less than zero, enter "0" in Col. 2.

SMALL ENTITY	
RATE	FEE
	\$ 345.00
x 9	\$
x 39	\$
+ 130	\$
TOTAL	\$ 345.00

OTHER THAN A SMALL ENTITY	
RATE	FEE
	\$ 690.00
x 18	\$
x 78	\$
+ 260	\$
TOTAL	\$

- ☒ One check ☐ two checks in the amount of \$ 345.00 to cover the filing fee and  
☐ assignment recordation is (are) enclosed.  
☒ The Commissioner is hereby authorized to charge and credit our Deposit Account No. 22-0256 as described below. A duplicate of this sheet is attached.  
☐ Charge the amount of \$ \_\_\_\_\_ to cover the filing fee and ☐ assignment recordation.  
☒ Charge deficiencies in the enclosed fees or any additional filing fees required under 37 CFR 1.16.  
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Respectfully submitted,  
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Registration No. 29,728

jc555 U.S. PTO  
09/553671  
04/20/00

Applicant or Patentee: Chin-Keng Hsieh

Serial or Patent No.:

Attorney's Docket No.:

Filed or Issued:

For: Triangle Road Sign with Solar Power-Driven Flashing Light Means

**VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL ENTITY STATUS  
(37 C.F.R. §1.9(F) AND §1.27(C)) - INDEPENDENT INVENTOR**

As a below named inventor, I hereby declare that I qualify as an independent inventor as defined in 37 CFR 1.9(c) for purposes of paying reduced fees under Section 41(a) and (b) of Title 35, United States Code, to the Patent and Trademark Office with regard to the invention entitled:

Triangle Road Sign with Solar Power-Driven Flashing Light Means

described in:

- ☒ the specification filed herewith  
☐ application serial no. , filed  
☐ patent no. , issued

I have not assigned, granted, conveyed or licensed and am under no obligation under contract or law to assign, grant, convey or license, any rights in the invention to any person who could not be classified as an independent inventor under 37 C.F.R. §1.9(c) if that person had made the invention, or to any concern which would not qualify as a small business concern under 37 C.F.R. §1.9(d) or a nonprofit organization under 37 C.F.R. §1.9(e).

Each person, concern or organization to which I have assigned, granted, conveyed, or licensed or am under an obligation under contract or law to assign, grant, convey, or license any rights in the invention is listed below:

- ☒ no such person, concern, or organization  
☐ person, concerns or organizations listed below\*

\*NOTE: Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 C.F.R. §1.27)

FULL NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

☐ INDIVIDUAL ☐ SMALL BUSINESS CONCERN ☐ NON PROFIT ORGANIZATION

FULL NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

☐ INDIVIDUAL ☐ SMALL BUSINESS CONCERN ☐ NON PROFIT ORGANIZATION

FULL NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

☐ INDIVIDUAL ☐ SMALL BUSINESS CONCERN ☐ NON PROFIT ORGANIZATION

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 C.F.R. §1.28(b)).

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are belief to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

Chin-Keng Hsieh

NAME OF INVENTOR

NAME OF INVENTOR

NAME OF INVENTOR

SIGNATURE OF INVENTOR

SIGNATURE OF INVENTOR

SIGNATURE OF INVENTOR

April 12, 2000

DATE

DATE

DATE

TRIANGLE ROAD SIGN WITH SOLAR  
POWER-DRIVEN FLASHING LIGHT MEANS

BACKGROUND AND SUMMARY OF THE INVENTION

5 The present invention relates to a triangle road sign, and more particularly to such a triangle road sign, which comprises a flashing light circuit assembly selectively driven by solar power, battery power, or alternating current power source to give a flashing warning signal.

10 A conventional triangle road sign 8, as shown in Figure 1, is generally comprised of a left frame bar 81, a right frame bar 82, a bottom frame bar 83, a stand 84, and reflectors 811, 821 and 831 respectively covered on the frame bars 81, 82 and 83. This structure of triangle road sign 8 is less effective because it can only give a static warning signal.

15 It is one object of the present invention to provide a triangle road sign, which is folding collapsible. It is another object of the present invention to provide a triangle road sign, which actively gives a warning signal. It is still another  
20 object of the present invention to provide a triangle road sign, which selectively uses solar power, battery power, or solar power source to drive flashing light circuit means to give a flashing warning signal. According to one aspect of the present invention, the  
25 triangle road sign is comprised of a folding



of Figure 3 installed in a part inside a car.

Figure 5 shows the triangle road sign set in the operative position in a car.

Figure 6 is a front side view of the triangle road sign after removal of the top mounting device and the connecting members.

Figure 7 is a rear side view of Figure 6.

Figure 8 illustrates the triangle road sign installed in the car near the rear window according to the present invention.

Figure 9 is an elevational view of an alternate form of the triangle road sign according to the present invention.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to Figures from 4 through 8, a triangle road sign in accordance with the present invention is generally comprised of a bottom mounting plate 1, a bottom rack 2, a left frame bar 3, a right frame bar 4, a top mounting device 5, and two connecting members 7.

The bottom mounting plate 1 has one side edge 11 hinged to the bottom rack 2, and a bottom side wall 12 fixedly fastened to a part 61 inside a car 6 near the rear window by adhesive or fastening members (see

Figure 8 ). The bottom rack 2 comprises a transparent rack shell 20 hinged to the bottom mounting plate 1, a solar collector panel 24 mounted on a front side of the transparent rack shell 20, a signal light 25 mounted in  
5 a back side of the transparent rack shell 20 (see Figures 7 and 8), a control switch 27 mounted on the transparent rack shell 20, a flashing circuit (not shown) installed in the transparent rack shell 20 and controlled by the control switch 27 to flash the signal  
10 light 25, a solar battery circuit (not shown) installed in the transparent rack shell 20 and connected between the flashing circuit and the solar collector panel 24 through the control switch 27 to convert solar energy collected from the solar collector panel 24 into  
15 electricity and to store the electricity thus obtained for the flashing circuit and the signal light 25, an indicator light 29, which indicated battery charging status of the solar battery circuit, a rechargeable battery (not shown) installed in the transparent rack  
20 shell 20 and controlled by the control switch 27 to provide the necessary working voltage to the flashing circuit and the signal light 25, an alternating current adapter 28 installed in the transparent rack shell 20 for receiving external alternating current power supply  
25 to charge the rechargeable battery, and a battery box 26 installed in the transparent rack shell 20 and controlled by the control switch 27 to provide the necessary working voltage to the flashing circuit and the signal light 25. The transparent rack shell 20  
30 comprises two coupling notches 221 and 231 at two distal ends thereof for receiving the left frame bar 3 and the right frame bar 4. The left frame bar 3 comprises a transparent body 30, a coupling rod 31

extended from one end of the transparent body 30 and pivotally secured to one coupling notch 221 at the transparent rack shell 20 of the bottom rack 2 by a pivot 201, a signal light 32 installed in the back side of the transparent body 30 and controlled by the control switch 27 to flash, a raised portion 34 raised from one end of the transparent body 30 remote from the coupling rod 31, and a locating ring 33 disposed near one end of the transparent body 30 adjacent to the raised portion 34 for the mounting of one connecting member 7. The right frame bar 4 comprises a transparent body 40, a coupling rod 41 extended from one end of the transparent body 40 and pivotally secured to one coupling notch 231 at the transparent rack shell 20 of the bottom rack 2 by a pivot 202, a signal light 42 installed in the back side of the transparent body 40 and controlled by the control switch 27 to flash, a recessed portion 44 formed on one end of the transparent body 40 remote from the coupling rod 41 for engagement with the raised portion 34 at the transparent body 30 of the left frame bar 33, and a locating ring 43 disposed near one end of the transparent body 40 adjacent to the recessed portion 44 for the mounting of one connecting member 7. The top mounting device 5 comprises a top mounting plate 51 fastened to the ceiling of the car 6 by adhesive or fastening means, and a bottom coupling loop 52 suspended from the top mounting plate 51 to hold the connecting members 7. The connecting members 7 are elastic members, each having one end terminating in a first hook 71 hooked on the bottom coupling loop 52 of the top mounting device 5 and a bottom end terminating in a second hook 72 hooked on the locating ring 33 and

43 at the left frame bar 3 or right frame bar 4.

When sunlight is available, the triangle road sign is put under the sun, enabling the solar collector panel 24 to collect the radiating energy of the sun for converting into electricity. When not in use, the bottom mounting plate 1 and the bottom rack 2 are turned toward each other and closely attached together to minimize space occupation. When in use, the left frame bar 3 and the right frame bar 4 are turned upwards from the bottom rack 2 toward each other to force the recessed portion 44 at the transparent body 40 of the right frame bar 41 into engagement with the raised portion 34 at the transparent body 40 of the right frame bar 41 into engagement with the raised portion 34 at the transparent body 30 of the left frame bar 3, and then connecting members 7 and the top mounting device 5 are fastened to the frame bars 3 and 4, and then the bottom mounting plate 1 and the top mounting device 5 are fastened to the inside of the car 6 to secure the triangle road sign in position, keeping the signal lights 25, 32 and 42 facing the rear window of the car 6. By means of operating the control switch 27, the signal lights 25, 32 and 42 are driven to give a flashing warning signal. The signal lights 25, 32 and 42 can be any of a variety of light emitting elements, for example, light emitting diodes.

Figure 9 shows an alternate form of the triangle road sign. This alternate form eliminates the aforesaid bottom mounting plate 1, top mounting device 5 and connecting members 7. Further, the bottom rack 2 of this alternate form is mounted with a folding



collapsible stand formed of two foot members 203 and 204.

It is to be understood that the drawings are designed for purposes of illustration only, and are not  
5 intended for use as a definition of the limits and scope of the invention disclosed.

CLAIMS

1. A triangle road sign comprising:

5 a bottom rack, said bottom rack comprising a transparent rack shell, said transparent rack shell comprising a front side, a back side, a first end, and a second end, a signal light mounted in the back side of said transparent rack shell, a control switch mounted on said transparent rack shell, a solar collector and battery circuit means installed in said  
10 transparent rack shell to collect solar energy and to convert collected solar energy into electricity for the signal light at said transparent rack shell, a flashing circuit installed in said transparent rack shell and controlled by said control switch to flash the signal  
15 light at said transparent rack shell, an indicator light, which indicates the battery charging status of said solar collector and battery circuit means, a rechargeable battery installed in said transparent rack shell and controlled by said control switch to provide  
20 the necessary working voltage to the signal light at said transparent track shell, an alternating current adapter insalled in said transparent rack shell for receiving external alternating current power supply to charge said rechargeable battery, and a battery box  
25 installed in said transparent rack shell and controlled by said control switch to provide the necessary working voltage to the signal light at said transparent rack shell;

a bottom mounting plate hinged to said bottom  
30 rack for securing said bottom rack to a part in a car;



frame bar and said right frame bar are light emitting diodes.

3. A triangle road sign comprising:

5 a bottom rack, said bottom rack comprising a transparent rack shell, said transparent rack shell comprising a front side, a back side, a first end, and a second end, a signal light mounted in the back side of said transparent rack shell, a control switch mounted on said transparent rack shell, a solar  
10 collector and battery circuit means installed in said transparent rack shell to collect solar energy and to convert collected solar energy into electricity for the signal light at said transparent rack shell, a flashing circuit installed in said transparent rack shell and  
15 controlled by said control switch to flash the signal light at said transparent rack shell, an indicator light, which indicates the battery charging status of said solar collector and battery circuit means, a rechargeable battery installed in said transparent rack  
20 shell and controlled by said control switch to provide the necessary working voltage to the signal light at said transparent rack shell, an alternating current adapter installed in said transparent rack shell for receiving external alternating current power supply to  
25 charge said rechargeable battery, and a battery box installed in said transparent rack shell and controlled by said control switch to provide the necessary working voltage to the signal light at said transparent rack shell;

30 a folding collapsible stand mounted on said

bottom rack for supporting said bottom rack on the road;

5 a transparent left frame bar, said left frame bar comprising a first end pivoted to the first end of said transparent rack body, a second end, a signal light controlled by said control switch to flash, a raised portion raised from the second end of said left frame bar, and a locating ring adjacent to said raised portion; and

10 a transparent right frame bar, said right frame bar comprising a first end pivoted to the second end of said transparent rack body, a second end, a signal light controlled by said control switch to flash, a recessed portion formed on the second end of said left frame bar for engagement with the raised portion  
15 of said left frame bar, and a locating ring adjacent to said recessed portion.

TRIANGLE ROAD SIGN WITH SOLAR  
POWER-DRIVEN FLASHING LIGHT MEANS

ABSTRACT OF THE DISCLOSURE

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5 A triangle road sign is constructed to include a bottom rack, a left frame bar and a right frame bar respectively pivoted to two distal ends of the bottom rack and detachably coupled to each other to form a triangle rack with the bottom rack, mounting means for securing the triangle rack to the inside of a car, indicator lights respectively installed in the bottom rack, the left frame bar and the right frame bar and controlled to flash by a control switch at the bottom rack, a solar collector and battery circuit means installed in the bottom rack to collect solar energy and to convert collected solar energy into electricity for the signal lights at the bottom rack, 10 the left frame bar and the right frame bar, a battery box installed in the bottom rack and controlled by the control switch to provide the necessary working voltage to the signal lights, an alternating current adapter controlled by the control switch to convert alternating current power supply to direct current power supply for 20 the signal lights.

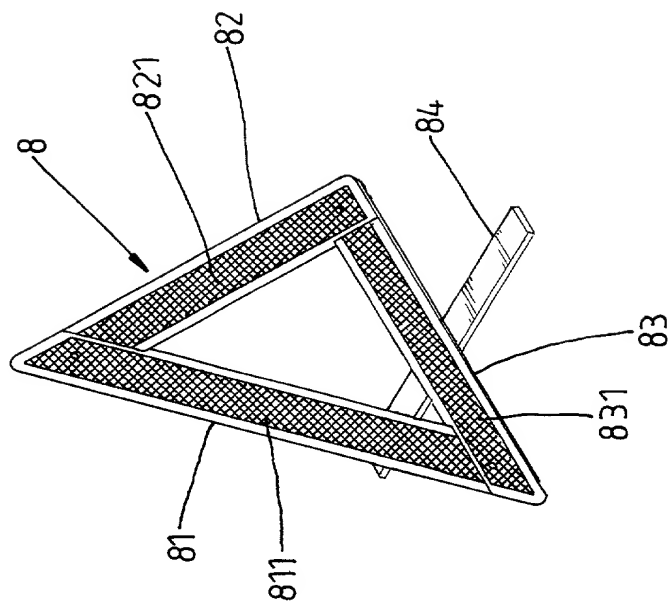
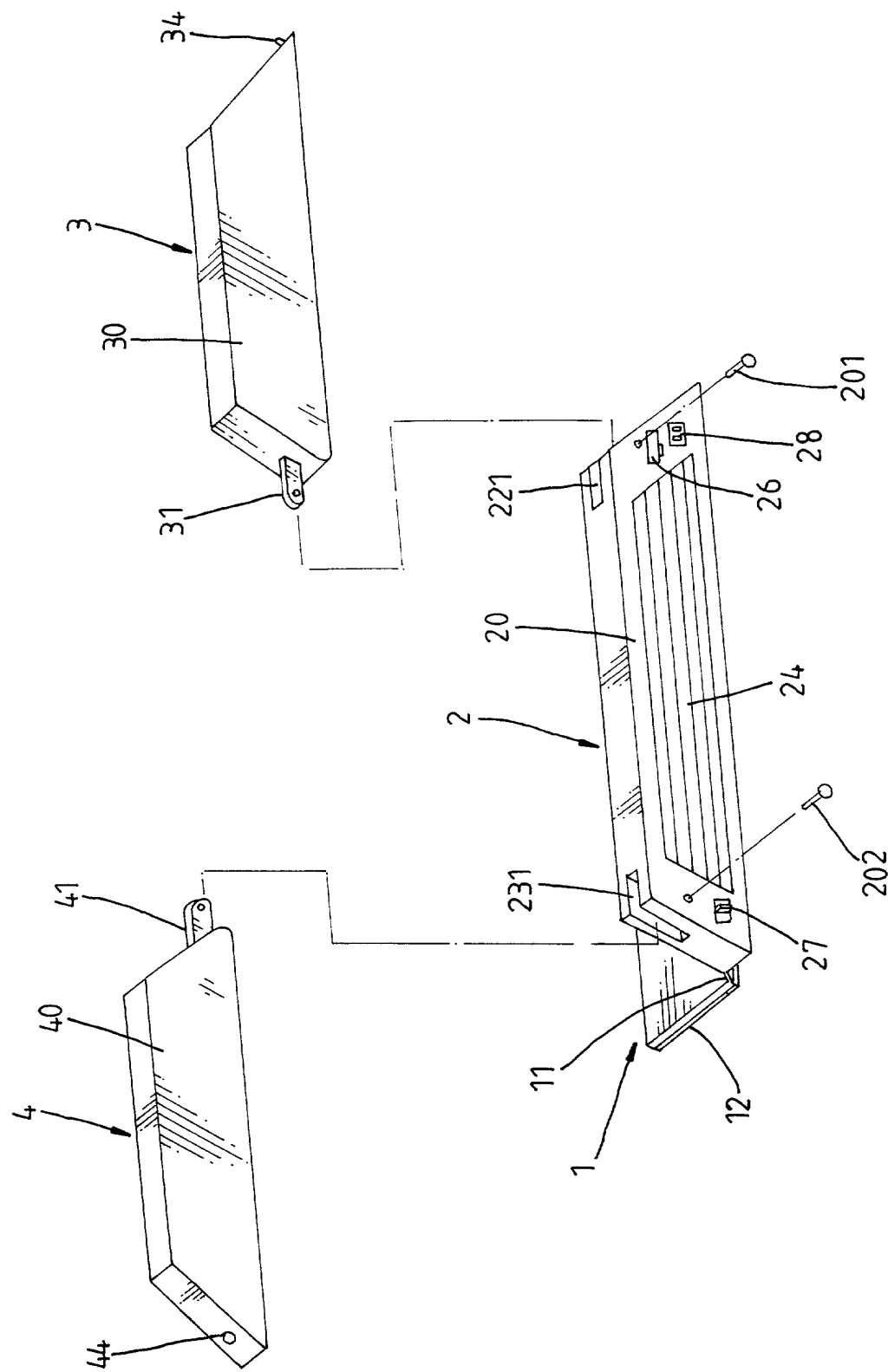


Fig. 1 PRIOR ART





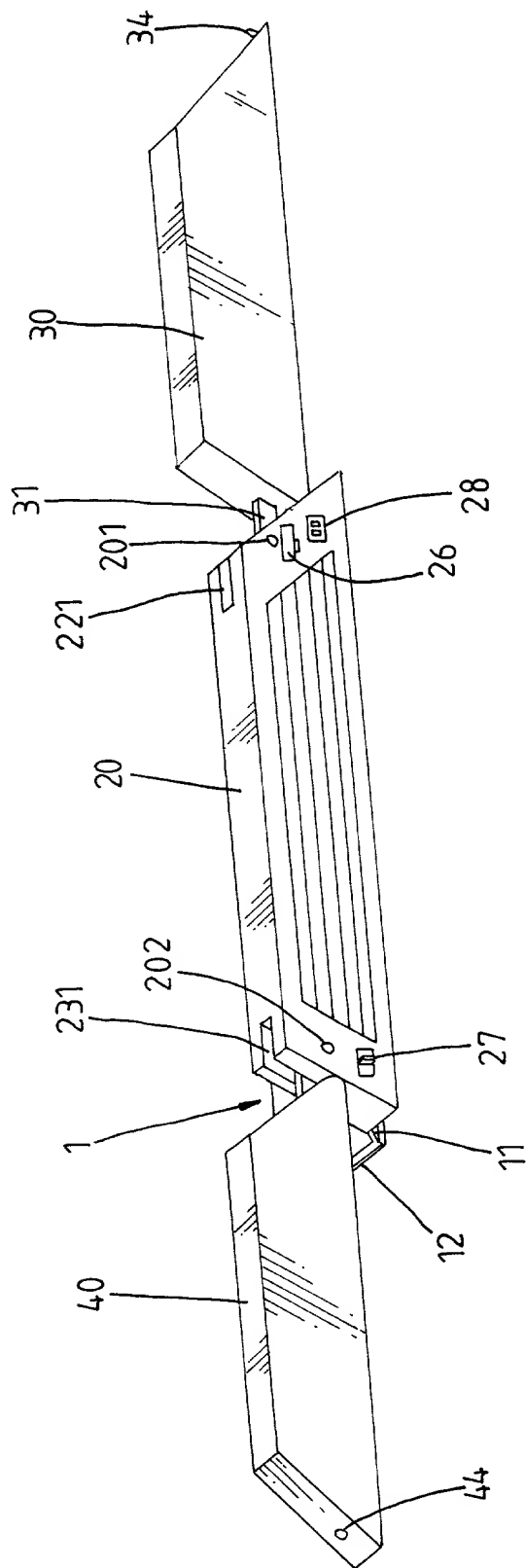


Fig. 3

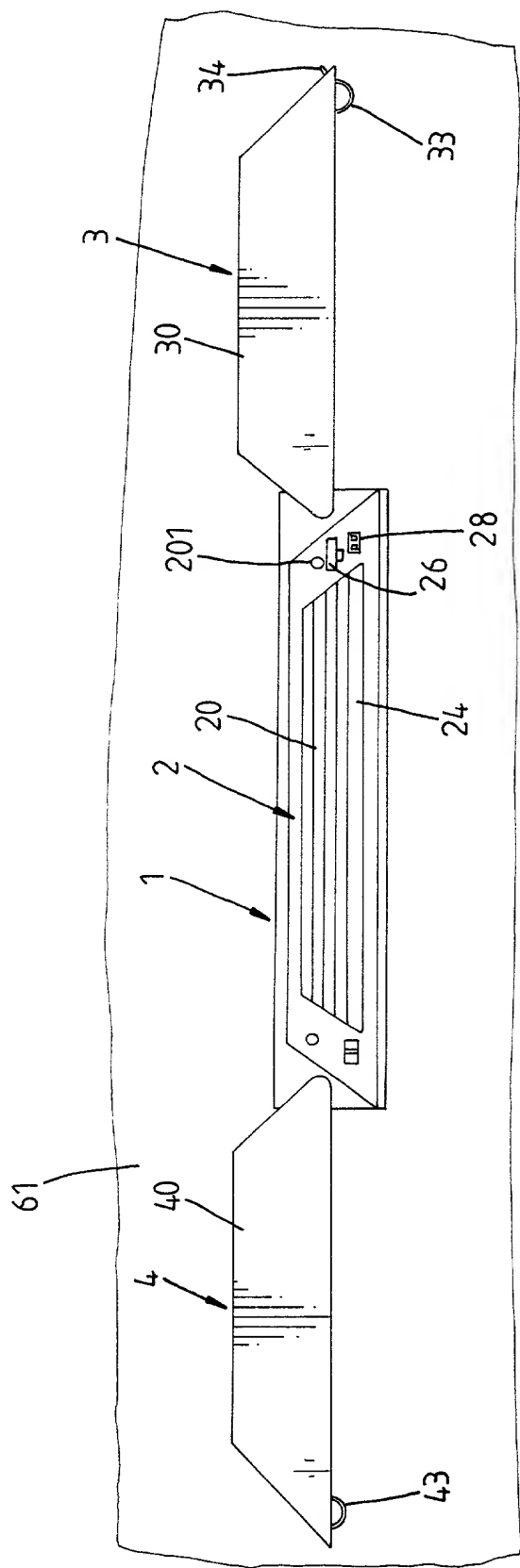


Fig. 4

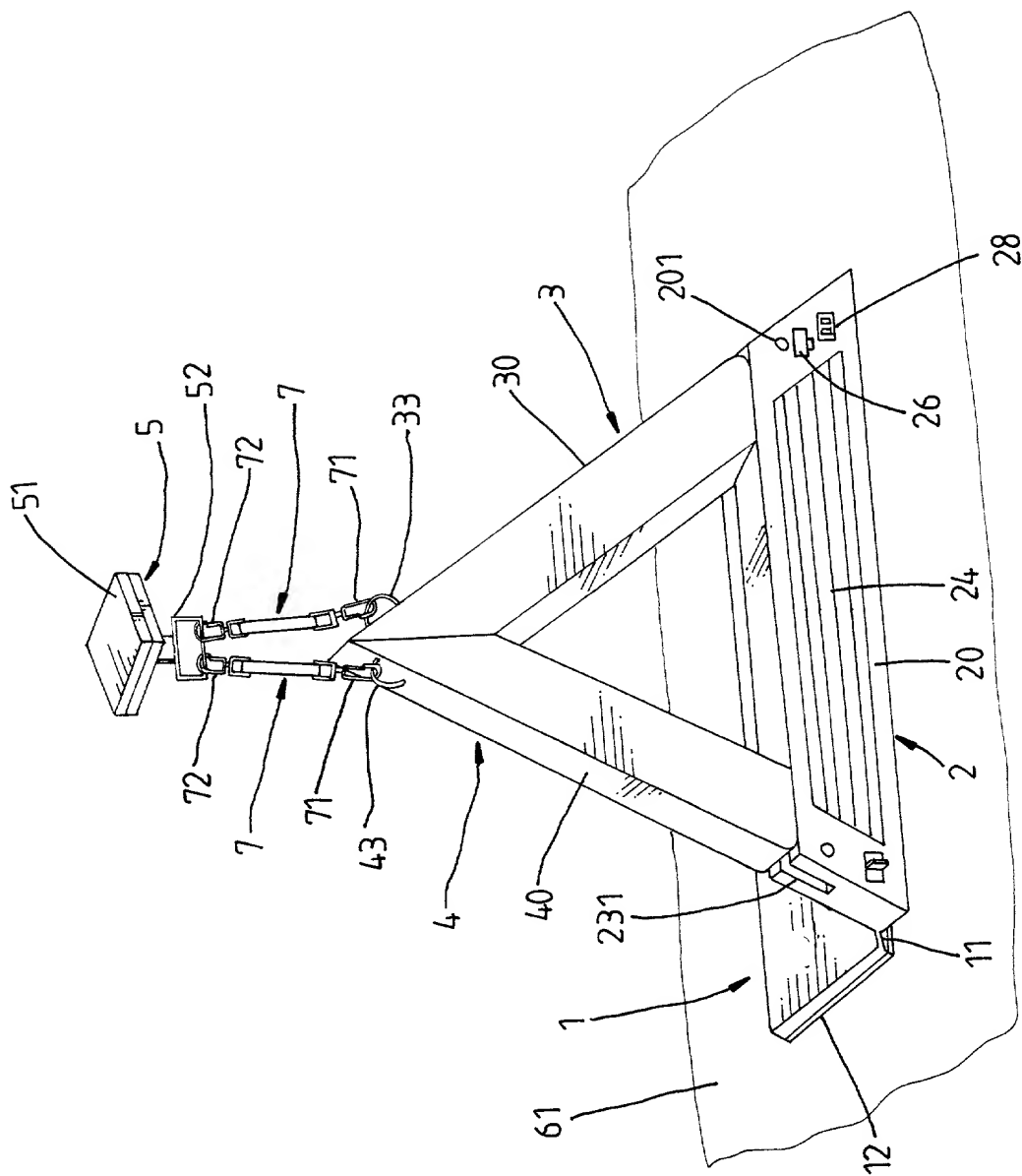


Fig. 5

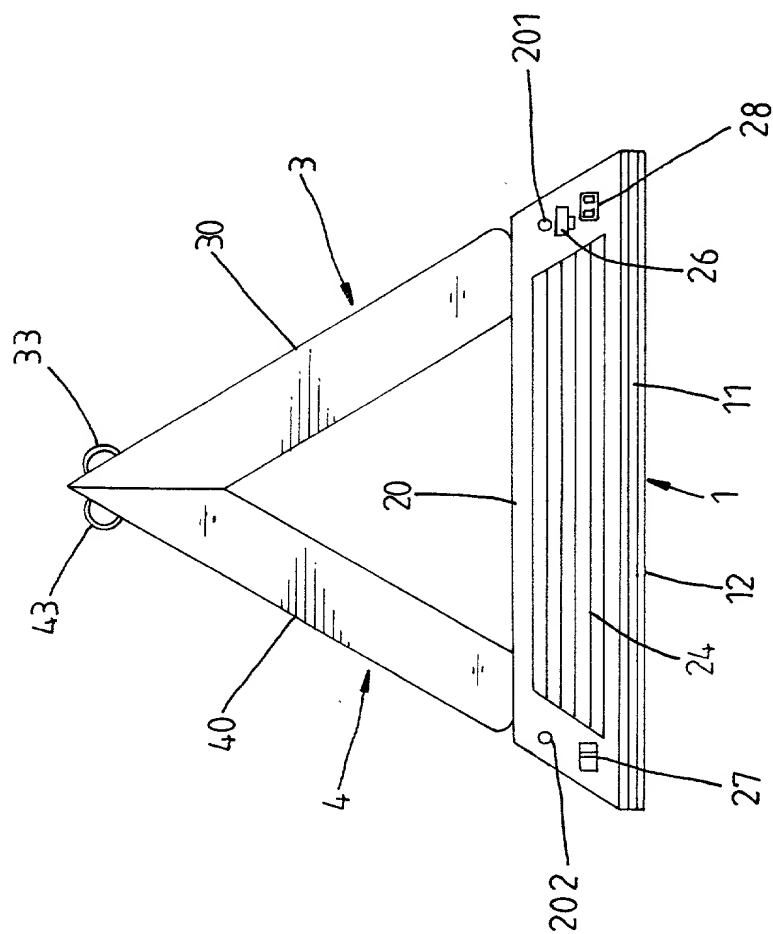


Fig. 6

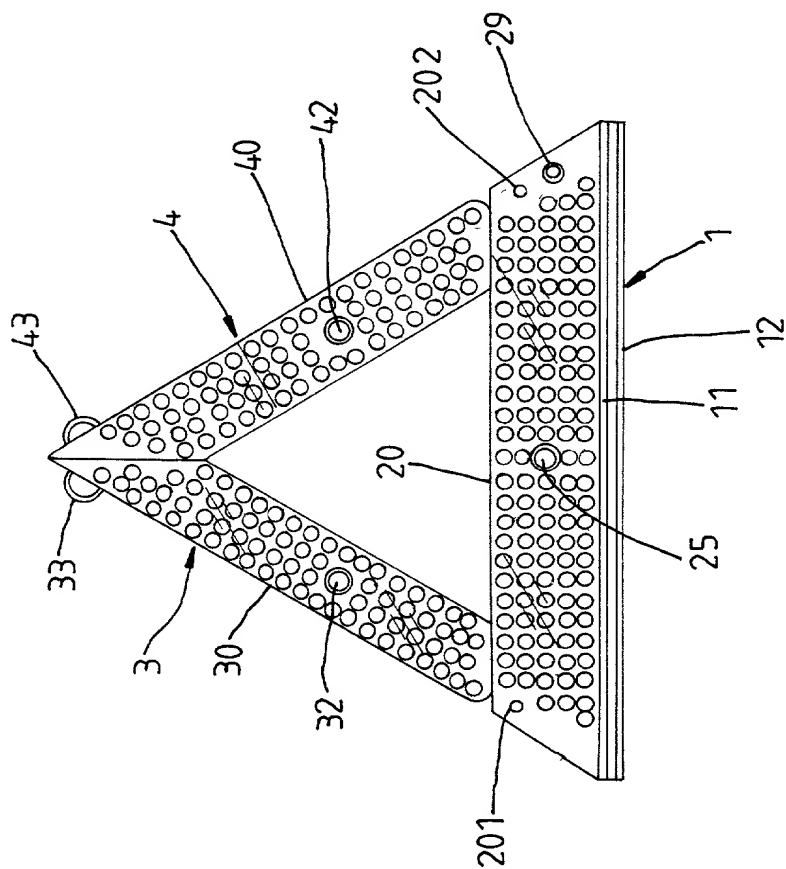


Fig. 7

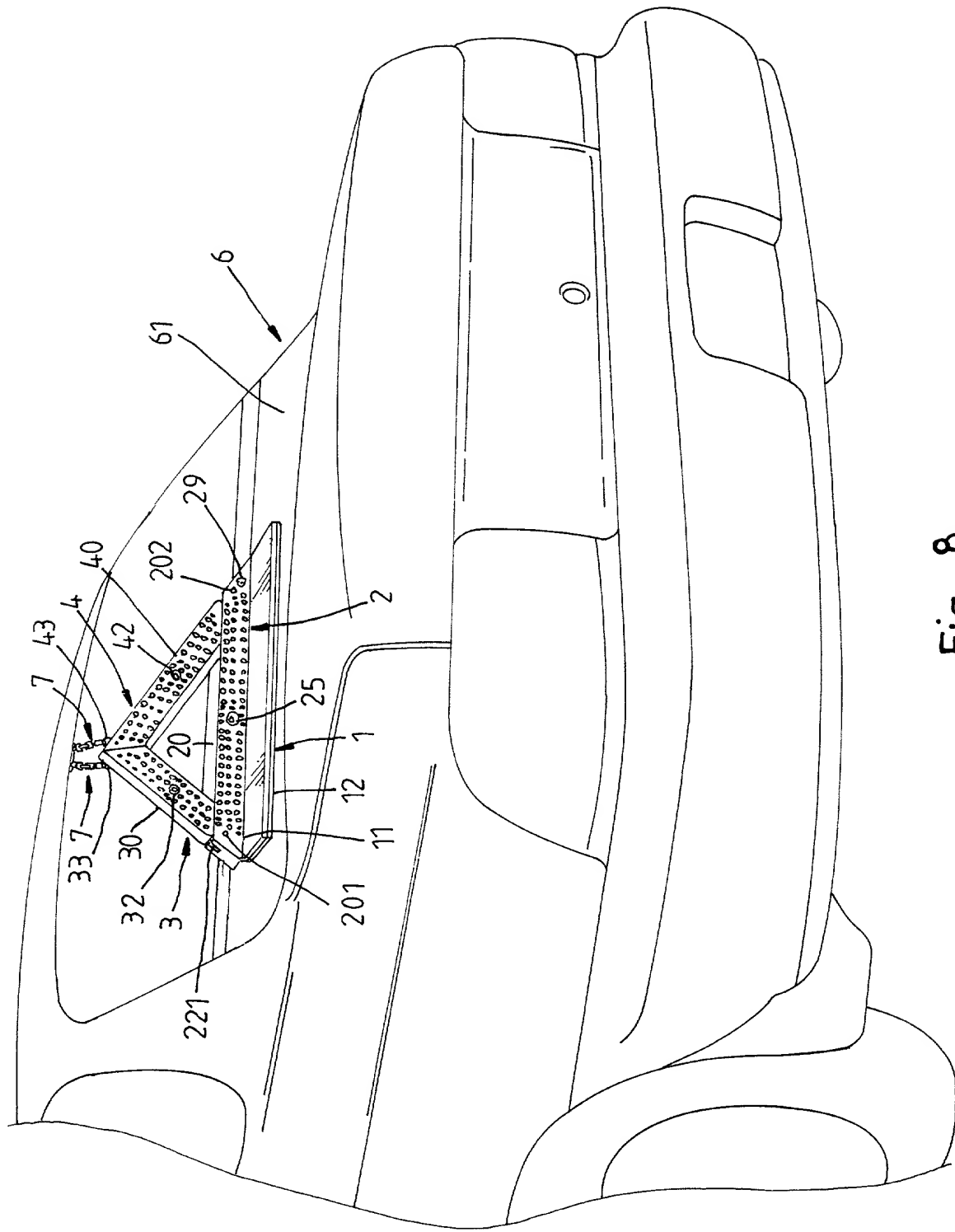


Fig. 8

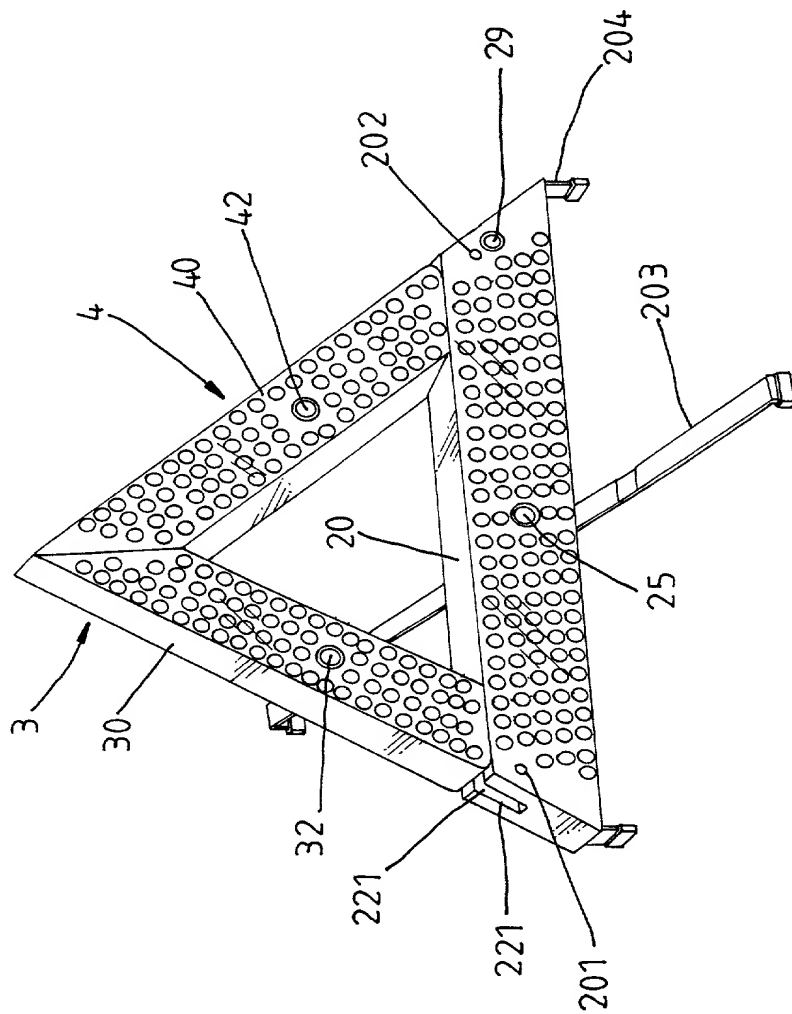


Fig. 9

## DECLARATION FOR PATENT APPLICATION

As a below named inventor, I hereby declare: that my residence, post office address and citizenship are as stated below next to my name; that I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled Triangle Road Sign with Solar Power-Driven Flashing Light Means

the specification of which (check only one item below):

- ☒ is attached hereto.  
☐ was filed on \_\_\_\_\_ as  
United States application Serial No. \_\_\_\_\_  
and was amended on \_\_\_\_\_ (if applicable).  
☐ was filed on \_\_\_\_\_ as  
PCT international application No. \_\_\_\_\_  
and was amended under PCT Article 19 on \_\_\_\_\_ (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified application, including the claim(s), as amended by any amendment referred to above. I acknowledge the duty to disclose information which is material to the examination of this application in accordance with the Title 37, Code of Federal Regulations, §1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s)			Priority Claimed
(Number) _____	(Country) _____	(Month/Day/Year Filed) _____	<input type="checkbox"/> Yes <input type="checkbox"/> No
(Number) _____	(Country) _____	(Month/Day/Year Filed) _____	<input type="checkbox"/> Yes <input type="checkbox"/> No
(Number) _____	(Country) _____	(Month/Day/Year Filed) _____	<input type="checkbox"/> Yes <input type="checkbox"/> No
(Number) _____	(Country) _____	(Month/Day/Year Filed) _____	<input type="checkbox"/> Yes <input type="checkbox"/> No
(Number) _____	(Country) _____	(Month/Day/Year Filed) _____	<input type="checkbox"/> Yes <input type="checkbox"/> No

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

(Application Serial No.) _____	(Filing Date) _____	(Status)(patented, pending, abandoned) _____
(Application Serial No.) _____	(Filing Date) _____	(Status)(patented, pending, abandoned) _____

I hereby claim the benefit under Title 35, United States Code, §119(e) of any United States provisional application(s) listed below:

(Application Serial No.) _____	(Filing Date) _____
(Application Serial No.) _____	(Filing Date) _____



